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a pixel addressing system operatively associated with the nanocrystal array for selectively optically exciting the nanocrystals to produce a luminescent color pattern of pixels.

REMARKS

Claims 1-23 were presented for examination. Claim 1 has been amended to delete the term "undoped." Reconsideration is respectfully requested.

Claims 1-23 are rejected under 35 USC 112, first paragraph, for lack of written description. The Examiner's position is that the limitation that the nanocrystals are undoped is not described in the spec in such a way as to convey to one skilled in the art that applicant had possession of the claimed invention.

Claim 1 has been amended to delete the term "undoped" and obviate the rejection. However, Applicant submits that although the term "undoped" is not explicitly used in the spec, it is implicit. There is no mention whatever of doping of the nanocrystals and crystal size is used to determine color. Thus one skilled in the art would have reasonably understood that the nanocrystals are undoped and that Applicant was in possession of the claimed invention. However, since the inclusion of the term undoped is not deemed necessary to establish patentability, it is being deleted.

Claims 1-6, 12-15, 17-22 are rejected under 35 USC 102(b) as anticipated by Jaskie. The Examiner states that Jaskie shows a *multicolor display apparatus* having an array of nanocrystals *arranged to form a plurality of different colors*, wherein the sizes determine the *colors*, and a *pixel addressing system* for *selectively* exciting the nanocrystals to *produce a color pattern of pixels*. This rejection is respectfully traversed.

Contrary to the assertion by the Examiner, none of the features shown in italics above are found in Jaskie. Jaskie shows a fluorescent screen of a single color, without individually addressed pixels of different colors. The color of different screens is selected at manufacture by selecting the proper size nanocrystals.

Applicant claims a multicolor display apparatus, with an array of nanocrystals arranged to form a plurality of pixels of different colors, wherein the sizes of the nanocrystals determine the colors; and a pixel addressing system operatively associated with the nanocrystal array for selectively optically exciting the nanocrystals to produce a luminescent color pattern of pixels. These pixels are clearly illustrated in Figs. 1A-F as pixels 16, 20, 24 and each pixel is made of different color, i.e. different size, nanocrystals. This combination of features is not shown or suggested by Jaskie.

Jaskie's "Fluorescent Device" (title, abstract) has a fluorescent screen containing a plurality of particles, each quantum confined by a size dictated by a specific desired color (abstract). Jaskie pertains to fluorescent screens (field of the invention, col. 1, lines 6-8). The background indicates that it is a light source like a phosphor (col. 1, lines 23-28). The purpose is to provide an improved fluorescent device in which "the color" can be easily modified (summary, col. 3, lines 3, 7). The fluorescent screen has a fluorescent layer "containing a plurality of particles, each quantum confined by a size dictated by a specific desired color" (col. 3, lines 15-19). The screen is made by "providing a plurality of particles each quantum confined by a size dictated by a specific desired color" and "fixedly depositing the plurality of particles on a surface of the supporting substrate in a fluorescent layer." (col. 3, lines 22-30)

Jaskie Fig. 2 shows a fluorescent screen 20 with a fluorescent layer 24 including particles 26 fixedly deposited by general deposition methods (col. 6, lines 20-38). No pixels whatsoever are described or shown in Fig. 2. No method of forming pixels is described. Instead only a continuous distribution of nanocrystals 26 over the entire layer 24 is shown. The layer 24 produces a single color which is selected at manufacture: "the color of the emitted light of fluorescent screen 20 is adjusted, or tuned, by adjusting the size distribution of particles 26 during manufacture." (col. 6, lines 44-46)

Jaskie Fig. 3 shows a fluorescent bulb 30 with a nanocrystal layer 39 as described in Fig. 2, and emits "a light, the color of which is determined by the size of the quantum contained particles in layer 39." (col. 7, lines 41-60) Jaskie Fig. 4 shows a CRT 50 with a nanocrystal layer 53 as described in Fig. 2, and "any desired color ... is achieved by adjusting the size distribution of the ... particles during manufacture." (col. 7, line 61 to col. 8, line 4) Jaskie Fig. 5 is similar to Fig. 4 with the same fluorescent layer 53, with a FED array in place of an electron gun to stimulate the fluorescence (col. 8, lines 19-28).

Thus it is clear the Jaskie does not teach or suggest Applicant's claimed multicolor display apparatus. Jaskie merely shows a fluorescent device whose color is easily tuned during manufacture (col. 8, lines 29-34). It is clear that Jaskie does not show an array of nanocrystals arranged in a plurality of pixels of different colors, and a pixel addressing system to produce a luminescent color pattern of the pixels. At most Jaskie shows that nanocrystals of different sizes produce different colors, a known property of nanocrystals that Applicant described on page 2 of the spec. But Applicant has used these different size/different color nanocrystals in a different way than Jaskie to produce a different apparatus:

To support a proper 102 rejection, each feature and limitation in the claims must be found in the reference. Since all the features and limitations of base Claim 1 are not taught or suggested by Jaskie, Claim 1 is deemed allowable, and all dependent claims should also be patentable. Therefore it is submitted that the rejection has been obviated.

Claims 7-11, 23 are rejected under 35 USC 103 (a) over Jaskie in view of Yagyu. Claim 16 is rejected under 35 USC 103 (a) over Jaskie in view of Bhargava '489. These rejections are respectfully traversed. Jaskie fails to teach or suggest the basic features of Applicant's claimed invention as recited in Claim 1, Yagyu's modulator/analyzer/polarizer and Bhargava's filter merely show an additional element which when added to Jaskie does not produce Applicant's claimed invention. Thus the rejections are obviated.

Accordingly it is submitted that all claims are in condition for allowance, which is earnestly solicited. If any impediment should remain which can be resolved by telephone please call Applicant's Attorney at (510) 486-4534.

Respectfully submitted,



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APPENDIX

Version with markings to show changes.

IN THE CLAIMS:

Claim 1 is amended as follows:

1. (Twice Amended) A multicolor display apparatus, comprising:
an array of [undoped] semiconductor nanocrystals arranged to form a plurality of pixels of different colors, wherein the sizes of the nanocrystals determine the colors;
a pixel addressing system operatively associated with the nanocrystal array for selectively optically exciting the nanocrystals to produce a luminescent color pattern of pixels.

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